California Public Utilities Commission

# RENEWABLES PORTFOLIO STANDARD

# Quarterly Report

## 4th Quarter 2014

# I. ABOUT THE RPS AND THIS REPORT

**California is aggressively bringing renewable generation online to meet its Renewables Portfolio Standard (RPS), one of the most ambitious renewable standards in the country.**

California's RPS, codified in Public Utilities Code §§ 399.11 – 399.32[1], requires retail sellers, investor-owned utilities (IOUs), electric service providers (ESPs) and community choice aggregators (CCAs) regulated by the California Public Utilities Commission (CPUC or the Commission) to procure 33% of their annual retail sales from eligible renewable sources by 2020. The RPS also requires retail sellers to achieve intermediate RPS targets of 20% from 2011-2013 and 25% from 2014-2016. The CPUC and the California Energy Commission (CEC) are jointly responsible for implementing California's 33% RPS program.

While the RPS program is the primary vehicle for new utility-scale renewable energy development in California, there are other programs that stimulate development of customer-side renewable generation. The California Solar Initiative (CSI) and Self-Generation Incentive Program (SGIP) provide incentives for customers to install renewable distributed generation technologies that directly serve their on-site load.[2] The electricity generated from power systems installed through CSI and SGIP may contribute to the RPS provided they meet RPS eligibility requirements established by the CEC.[3] In addition, electricity generated by these facilities indirectly contributes to the RPS by reducing demand when serving customer load.

The Commission issues this report on the RPS program every quarter pursuant to the 2006 Budget Act Supplemental Report Item 8660-001-0462. This report focuses on California's three large IOUs: Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E). These IOUs currently provide approximately 68% of the state's electric retail sales, and analyzing this data provides significant insight into the state's RPS progress.

[1] California's 20% RPS by 2020 was established in 2002 under Senate Bill (SB) 1078 (Sher) and modified in 2006 under SB 107 (Simitian). SB 2 of the First Extraordinary Session (SB 2 (1x)) (Simitian) (Stats. 2011, ch.1) expanded the mandate to a 33% RPS by 2020.

[2] More information on the CSI and SGIP can be found on the CPUC's website: http://www.cpuc.ca.gov/PUC/energy/DistGen/.

[3] In the case of renewable customer generation, the system-owner owns the renewable energy credits (RECs), but could sell the RECs to retail sellers to contribute to their RPS targets.

# II. EXECUTIVE SUMMARY

## Status of RPS Procurement

- On August 1, 2014, the three large IOUs reported in their annual 33% RPS Compliance Reports that they collectively served 20.9% of their retail electric load with RPS-eligible generation during the first compliance period (CP 1), which is from 2011 to 2013. PG&E served 20.6% of its CP 1 retail sales with RPS-eligible renewable energy, SCE with 20.7% and SDG&E with 21.6%. Pursuant to the procurement requirements in SB 2 (1X), the IOUs must average 20% renewable energy during CP 1.
- Since 2003, 8,248 MW of renewable capacity achieved commercial operation under the RPS program. In 2014, 3529 MW of capacity reached commercial operation.

## Highlights of Recent Events

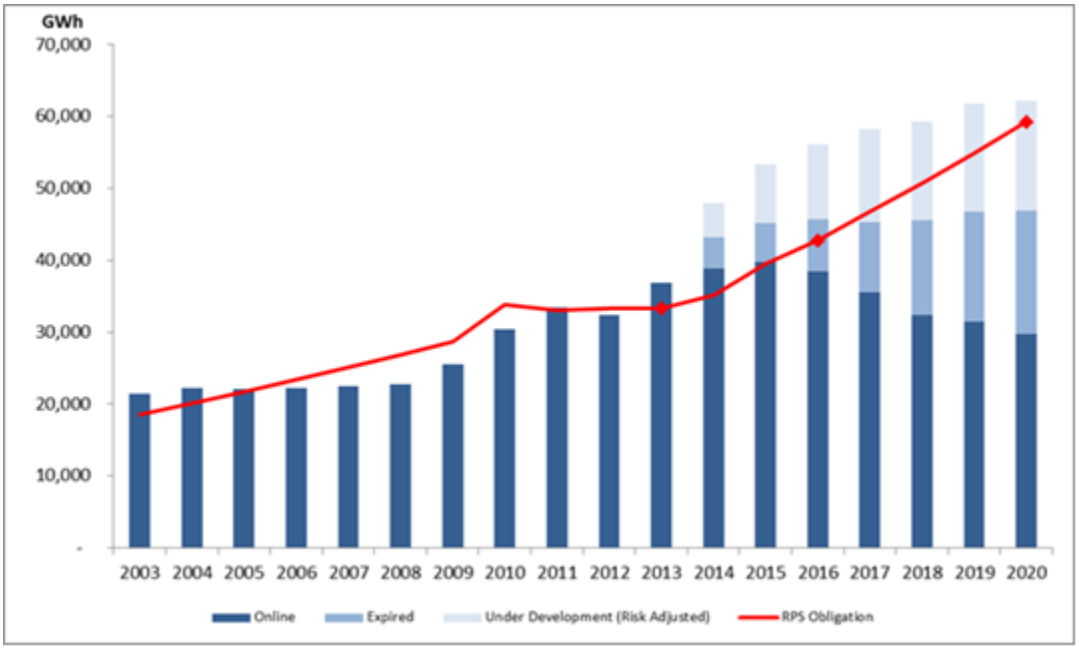
- On October 10, 2014, the Commission issued a ruling inviting comments from stakeholders for revisions to components of the RPS Calculator for the purposes of developing policy-based portfolios to potentially inform the Commission's Long-Term Procurement Plan proceeding and the California Independent System Operator's Transmission Planning Process.
- On November 14, 2014, the Commission adopted the Load Serving Entities' 2014 RPS Procurement Plans through Decision 14-11-042. The Decision includes directives on the future direction of the Renewable Auction Mechanism Program and includes several provisions related to RPS procurement reform.
- On December 18, 2014, the Commission adopted Decision 14-12-081 for the implementation of SB 1122 (Rubio, 2012), which requires investor-owned utilities to procure 250 MW of bioenergy.
- On December 18, 2014, the Commission adopted Decision 14-12-023 for compliance rules and enforcement issues in the RPS program.
- In the fourth quarter of 2014, the Commission approved 4 contracts, representing 270 MW of RPS capacity.

# III. PROGRESS TOWARDS A 33% RPS BY 2020

California is aggressively procuring renewable generation to ensure that 33% of retail sales is met with renewable energy resources by 2020. The figure below shows progress toward meeting that mandate, on a risk adjusted basis.[4] The IOUs reported meeting the 20% requirement for CP 1 in their April 1, 2014 RPS Procurement Progress Reports.[5] These reports also show that the IOUs are on track to meet the RPS requirement of 25% renewables by 2016 and are well-positioned to meet the 33% requirement by 2020.

While the figure below forecasts a surplus of renewable generation for CP 2 and a deficit for CP 3, it should be noted that the IOUs have the option to bank surplus CP 1 and CP 2 RPS procurement and apply it toward meeting RPS obligations in CP 3 or beyond. In order to achieve 33% in 2020 and every year thereafter, IOUs are also planning for additional procurement in CP 2, CP 3, and post-2020. The data has not changed from the Q2, 2014 RPS Status Report.

**Figure 1: IOU progress toward s 33% renewables, actual and forecasted by year** [6 and 7]




[4] Values are risk adjusted to account for a certain degree of project failure. The failure rate assumptions used for each IOU are those provided by the IOUs in their 2014 RPS Plans. On average, PG&E assumes a 10% failure rate for new projects not yet online, SCE assumes a 25% failure rate and SDG&E assumes a 14% failure rate for new projects not yet online.

[5] A final compliance determination is made by the CPUC on "Verified" RPS compliance reports, which are submitted after the CEC completes its RPS Verification analysis, which is not expected until Q4 2015.

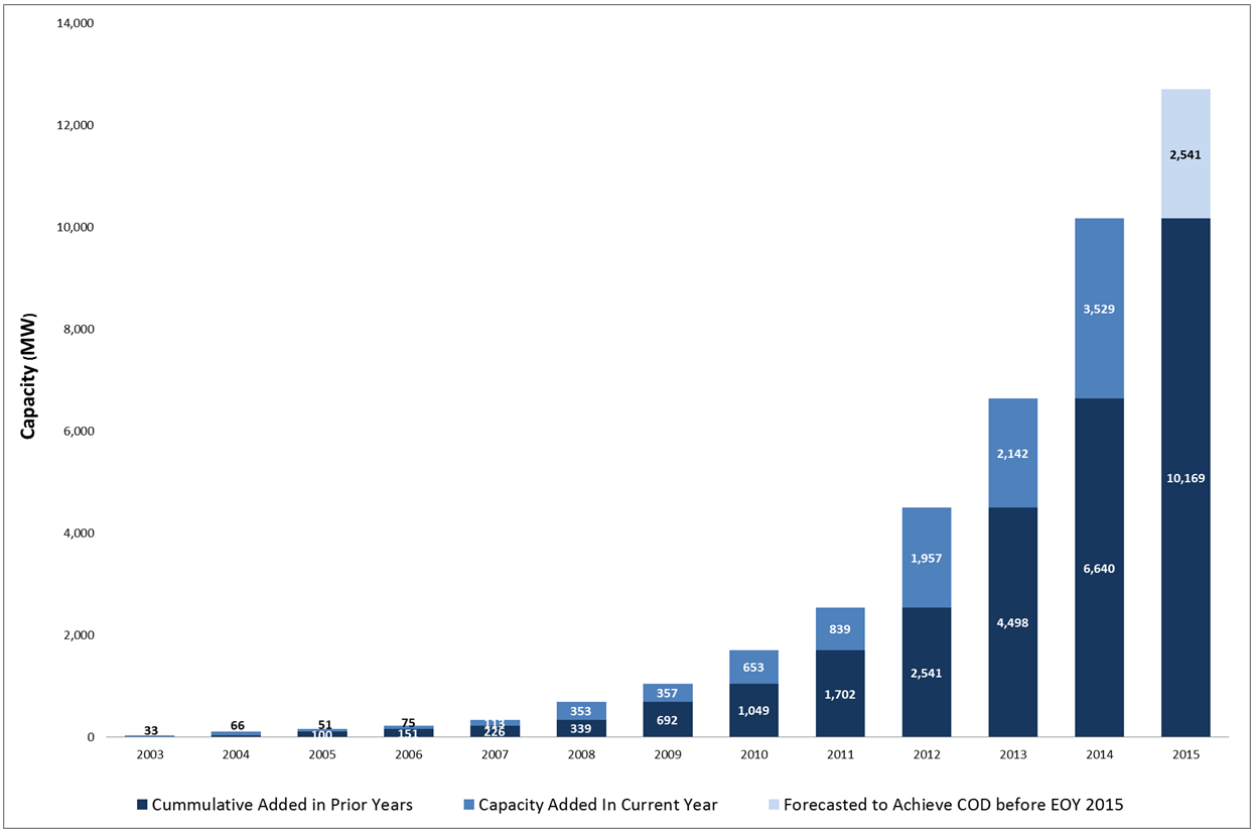
[6] Forecast does not assume re-contracting of contracts with a term that expires between 2014 and 2020.

[7] Data Source: 2003-2010 data sourced from the Final 20% RPS Closing Report (January 2014); 2011-2020 data sourced from the Annual 33% Compliance Reports (August 2014).

## CPUC APPROVED RENEWABLE CAPACITY ADDED IN 2014

Since 2003, 8,248 MW of renewable capacity achieved commercial operation under the RPS program. In 2014, more than 3,529 MW of renewable capacity has come online which represents the largest year-to-year increase in capacity since the beginning of the RPS program. An additional 2,541 MW of renewable capacity is forecasted to come online in 2015.

**Figure 2: RPS capacity installed since 2003 by year** [8 and 9]




## RPS RENEWABLE RESOURCE MIX

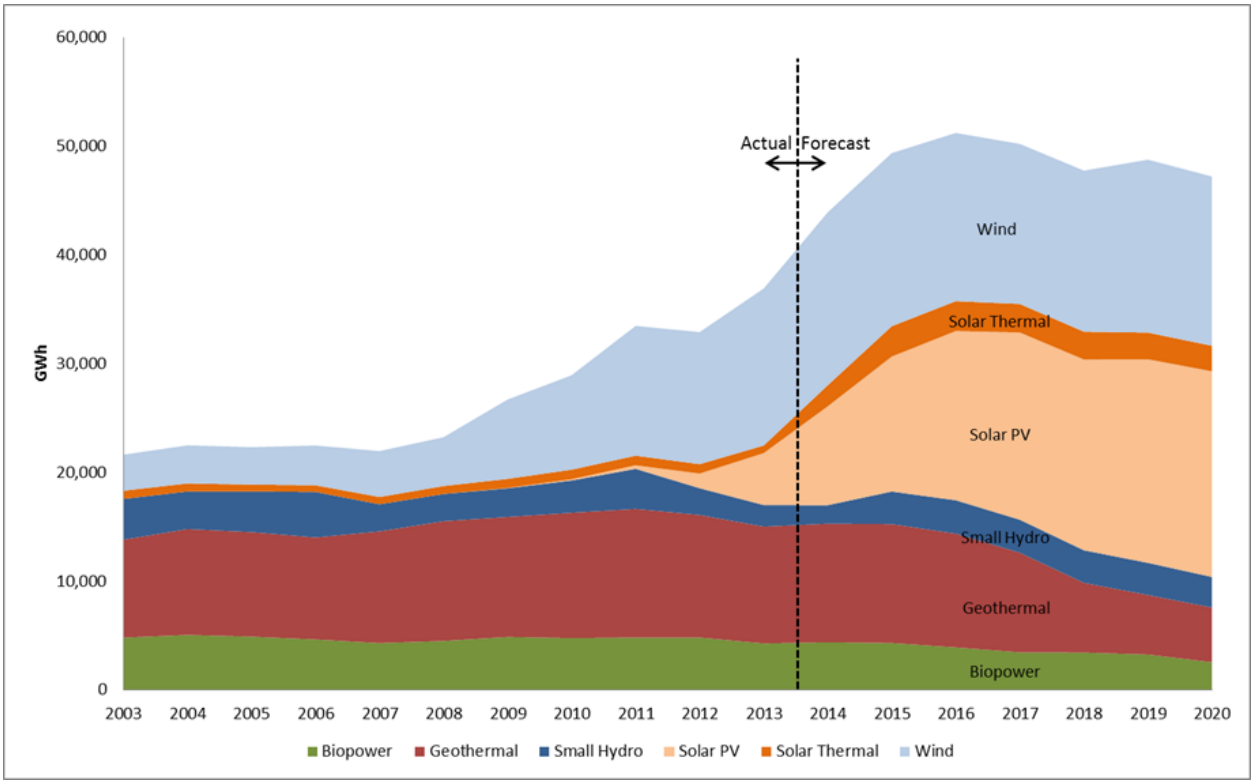
The mix of technologies bidding into and receiving PPAs through RPS solicitations has shifted over the life of the RPS program. In 2014, wind contributed 36% and geothermal contributed 25%, supplying the majority of California's renewable generation. The generation mix in 2020 is expected to reflect a considerable increase in generation coming online from new solar PV. Solar PV and solar thermal generating facilities are forecasted to contribute 40% and 5%, respectively,

[8] Data Source: IOU submissions to the RPS Contract Database (November 17, 2014)

[9] The actual capacity data for 2014 in this report (3,529 MW) differs from the forecast capacity data in the Q1 2014 RPS quarterly report (3,828 MW) because: 1) some of the forecast MWs expected to be developed in 2013 are now expected in 2014, and 2) some PPAs associated with MWs forecasted for 2014 were terminated because the associated projects did not meet their contractual obligations.

of the state's total renewable generation by 2020. The figure below displays California's actual and forecasted mix of renewable generation by technology type through 2020.

**Figure 3: Renewable resource mix, actual and forecasted by year** [10]




Biopower is defined as biomass and biogas technologies.

[10] Data Source: IOUs' Annual 33% Compliance Reports (August 1, 2014). Figure 3 only depicts existing IOU renewable contracts. It does not account for facilities that may be online and may receive new contracts after their current contracts expire.

## RPS CONTRACTING ACTIVITIES IN 2014

Since 2002, the Commission has approved more than 410 RPS PPAs for over 20,340 MW of renewable capacity. As Table 1 below shows, the Commission approved 4 additional contracts in the fourth quarter of 2014, representing 270 MW of RPS capacity.

**Table 1: IOU RPS-eligible contracts submitted and/or approved in 2014** [11]

| | | PG&E | | SCE | | SDG&E | | Large IOU Total | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number of Contracts | MW | Number of Contracts | MW | Number of Contracts | MW | Number of Contracts | MW |
| Q1 | Approved | 6 | 338 | 20 | 33 | 0 | 0 | 26 | 371 |
| | Submitted | 6 | 338 | 20 | 33 | 0 | 0 | 26 | 371 |
| | Pending | 14 | 208 | 0 | 0 | 0 | 0 | 14 | 208 |
| Q2 | Approved | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| | Submitted | 6 | 320 | 0 | 0 | 0 | 0 | 6 | 320 |
| | Pending | 1 | 18 | 20 | 33 | 0 | 0 | 21 | 51 |
| Q3 | Approved | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 |
| | Submitted | 5 | 275 | 0 | 0 | 0 | 0 | 5 | 275 |
| | Pending | 2 | 50 | 0 | 0 | 0 | 0 | 2 | 50 |
| Q4 | Approved | 4 | 270 | 0 | 0 | 0 | 0 | 4 | 270 |
| | Submitted | 0 | 0 | 7 | 1,555 | 0 | 0 | 7 | 1,555 |
| | Pending | 1 | 5 | 7 | 1,555 | 0 | 0 | 8 | 1,560 |

[11] Data Source: IOU submissions to the RPS Contract Database (November 17, 2014)

# IV. ONGOING PROCUREMENT

As noted above, the IOUs ongoing procurement has led to significant progress towards meeting RPS requirements. Within the RPS program there are several different procurement programs, including annual RPS solicitations, the Renewable Auction Mechanism (RAM), and the Renewable Market Adjusting Tariff (ReMAT).

In December 2013, the IOUs issued their 2013 RPS solicitations and they received bids from renewable developers in early 2014. As a result of its 2013 RPS solicitation, SCE submitted eight RPS contracts to the Commission for review and approval in October 2014. On November 20, 2014, the Commission approved the IOUs' 2014 RPS procurement plans authorizing the issuance of the IOUs' 2014 RPS solicitations. Any RPS contracts resulting from the solicitation are expected to be submitted to the Commission for approval in Q4 2015.

Additionally, in 2014 the IOUs continued to execute projects through the authorized small-scale RPS procurement programs: ReMAT, RAM and IOU-specific solar PV programs. Under the ReMAT program, the IOUs hold bi-monthly program periods that are open to projects up to 3 MW in size. The IOUs also held a fifth RAM auction that resulted in 437.7 MW of executed contracts. A sixth RAM auction is scheduled to occur in 2015 (see Section VII below for more information regarding the RAM program).

Lastly, the Commission approved individual solar PV programs for the three large IOUs in 2009 and 2010. Several rounds of solicitations have occurred since the programs have been approved, resulting in a number of contracts and utility-owned projects. More recently, the Commission has approved the modification and closing of the programs as well as the transfer of the remaining program capacity to the RAM program. As a result, both SCE and PG&E issued their final solar PV program solicitations in 2014. In 2014, resulting contracts will be submitted to the CPUC for review and approval in Q2 2015.

# V. PROCUREMENT REFORM

On November 20, 2014, the Commission adopted several reforms to the RPS procurement process through D.14-11-042. The proposals were the result of a multi-year process that included several rounds of comments. The goal of the procurement reform effort was to streamline the RPS contract review process, increase the transparency of the RPS contract review process, increase the transparency of the Commission's review of RPS procurement, establish clear standards for the RPS procurement review process, issue Commission determinations on contract reasonableness on a defined timeline, and generally support market certainty in RPS procurement.

# VI. IMPLEMENTATION OF SB 1122 (RUBIO, 2012)

On December 18, 2014 the Commission implemented SB 1122 (Rubio, 2012) through D.14-12-081. SB 1122 amended ReMAT and added a requirement that IOUs must collectively procure at least 250 MW from small renewable biomass or biogas project that commence operation on or after June 1, 2013 and meet the criteria of SB 1122 (Rubio, 2012). SB 1122 (Rubio, 2012) identified three broad categories of bioenergy resources and mandated specific procurement targets for each category:

- For biogas from wastewater treatment, municipal organic waste diversion, food processing, and codigestion, 110 megawatts.
- For dairy and other agricultural bioenergy, 90 megawatts.
- For bioenergy using byproducts of sustainable forest management, 50 megawatts.

In D.14-12-081, the Commission:

- Identified the required characteristics for each fuel type to be used under the mandate of SB 1122 (Rubio, 2012);
- Set the quantities of each eligible bioenergy category to be procured by the three IOUS;
- Adopted the mechanism for determining the tariff price of generation eligible under SB 1122 (Rubio, 2012) within the framework of ReMAT;
- Established a starting price of $127.72/MWh for all categories; and
- Sets an ending date of 60 months for the program from the beginning of the first program period.

# VII. CHANGES TO RAM PROGRAM

In 2010, the Commission adopted the RAM program through D.10-12-048 to create a simplified market based procurement process for smaller RPS generation projects, between 3 MW and 20 MW. In December 31, 2013, the Commission issued a ruling examining whether the RAM program should continue under its original objective or whether it should be reformed with different objectives to reflect the evolving renewable energy market for smaller projects.

The ruling included an analysis of the RAM program by the Commission's Energy Division. The analysis noted that in the first four RAM auctions held by IOUs, the Commission approved 74 RAM contracts representing 1,061 MW of renewable generation. Notably, the total capacity of the offers to bid into the first, second, and third RAM auctions was approximately 10 times larger than the allocated capacity into each auction. On this basis, the Energy Division analysis concluded that the responses to the RAM auctions were robust. Additionally, the Energy Division concluded that bid prices decreased with each successive auction. The weighted average price of projects executing RAM contracts decreased from approximately $90/MWh levelized post-TOD in RAM 1, to $88.75/MWh levelized post-TOD in RAM 2, to $79.82/MWh levelized post-TOD in RAM 3, to $71.54/MWh levelized post-TOD in RAM 4.

On November 20, 2014, the Commission issued D.14-11-042 reforming the RAM program. The Decision adopted one additional RAM auction, RAM 6 with mandated procurement targets, under a structure similar to past RAM auctions. Beyond RAM 6, the Decision adopted a revised RAM process characterized by the following:

- The revised RAM program does not have mandated procurement targets but instead allows the IOUs to determine the need for a RAM solicitation to meet a Commission authorized need or any need arising from legislative mandates.
- The revised RAM program does not cap projects at 20 MW but allows the IOUs to determine the optimal maximum project size for any procurement targeted through RAM.
- The revised RAM does not limit the geographic location of projects to the service territory of the three IOUs but instead expands the geographic location to the entire CAISO control area and also includes resources that can be dynamically scheduled into the CAISO.

# VIII. RECENT AND UPCOMING EVENTS

| Timing | Deliverable | Notes |
|---|---|---|
| October 10, 2014 | ALJ Ruling Seeking Comments: Revised RPS Calculator | An ALJ Ruling seeking comments on proposed revisions to the RPS calculator was issued. |
| November 20, 2014 | Decision: 2014 RPS Procurement Plans, Future of Renewable Auction Mechanism Program and Procurement Reform | The Commission adopted a decision regarding Load Serving Entities' 2014 RPS Procurement Plans. The decision includes directives on the future direction of the Renewable Auction Mechanism Program and includes several provisions related to RPS procurement reforms. |
| December 18, 2014 | Decision: SB 1122 (Rubio, 2012) | The Commission adopted a decision for the implementation of SB 1122 (Rubio, 2012), which requires investor-owned utilities to procure 250 MW of bioenergy. |
| December 18, 2014 | Decision: RPS Compliance and Enforcement | The Commission adopted a decision regarding RPS program compliance and enforcement rules. |
| December 24, 2014 | 20% RPS Closing Report Notification Letters | Following the adoption of an Enforcement Decision, the Energy Division Director issued a letter to retail sellers notifying them of their final 20% RPS compliance position. |
| February 10 and 11, 2015 | RPS calculator workshop | The Energy Division held a workshop to discuss and explore revisions to the RPS calculator. |